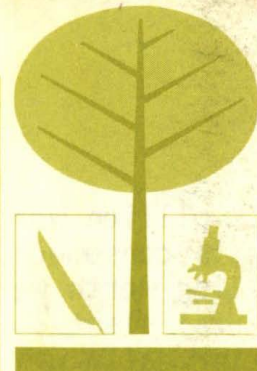
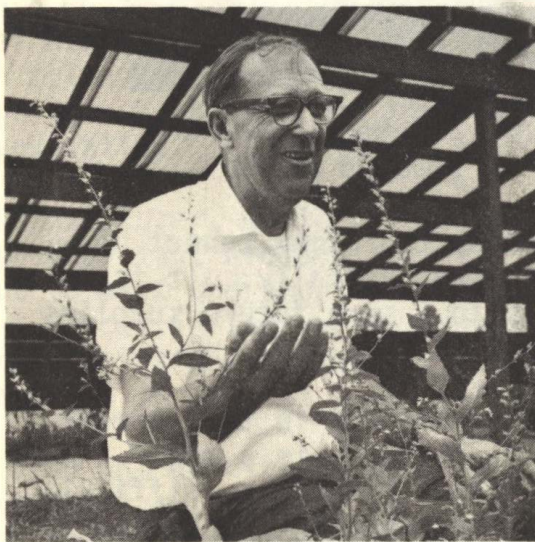


FORESTRY SCIENCE IN THE SERVICE OF MAN



Number 2

YOU CAN'T BEAT MOTHER NATURE



Dr. Arnold Krochmal often combs the Appalachian woods to replenish his supply of a plant called Lobelia inflata. Once back in his lab, he removes the seeds, dries them, then puts them into his germinator and lets them grow. For Krochmal, these trips between woods and lab are not unusual, for he is a research botanist and project leader at the Forest Service's North-eastern Forest Experiment Station Laboratory at Berea, Ky. His project is the study of medicinal plants, like Lobelia inflata--better known by its common names: Indian tobacco,

asthma weed, gagroot, vomitwort, pukeweed, emetic herb, bladder pod, and eyebright.

Krochmal works with plants of the forest undergrowth, as part of the Forest Service's program of total forest resource development. In particular, Krochmal is searching for ways to grow drug-value plants in the forest and in artificial culture.

Though the use of natural plants for healing has long been wrapped in superstition, many plants of the forest DO have medicinal qualities. The Indians discovered many plant drug ingredients and taught the first pioneers their value. Grandma, too, used many plants in her home remedies to treat coughs, sniffles, and other ailments.

Today, these plants have the same healing qualities and are in great demand. The commercial market for medicinal plants is huge. Of the

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\$2.5 billion worth of pharmaceuticals consumed in 1967, \$300 million worth were made from natural plants. The modern doctor daily writes at least eight prescriptions for drugs with natural properties. In addition, the ice cream dealer, textile and toilet goods manufacturer--literally, the butcher, baker and candle-stick maker--all find natural forest plants indispensable trade items.

The value of these plants cannot be overestimated: "You can't beat Mother Nature at her own job!" says forest scientist Krochmal.

And many of the most valuable medicinal plants have such complex molecules that they cannot be duplicated in a test tube or manufactured synthetically. It is therefore important that we take measures to insure future supplies of these high-value plants. Propagation is a way.



*Dr. Krochmal gathers
Lobelia seeds*



Lobelia Inflata

However, propagation--both in the forest and in artificial culture--is a major problem. Many of the plants are difficult, some virtually impossible to propagate. Conservationists fear that entire strains might deplete, if propagation remains unsuccessful. This is the problem which Dr. Krochmal, studying in cooperation with the University of Kentucky, Auburn University, and the University of Mississippi, seeks to remedy. He recently worked out a practical method for growing Lobelia inflata (or Indian tobacco) in cultivation from seeds--a task never possible before.

The alkaline lobeline sulfate, extracted from Indian tobacco, is chemically similar to nicotine. It is used extensively as an anti-smoking aid. The British pack it into aerosol cans. It comes in pill, pastille, lozenge, and capsule form in the United States. Smoking scares and the rising demand for lobeline sulfate as a veterinary medicine and

as a treatment for respiratory ailments, promise to make Dr. Krochmal's greenhouse propagation method highly valuable.

Krochmal is currently publishing an illustrated Manual of Medicinal Plants of Appalachia, that will provide information to local residents who might want to spend their spare hours in the forest collecting plants for profit. This undertaking could provide supplemental incomes in depressed Appalachia, where 75 percent of the high value species grow. Krochmal encourages this practice, although urging collectors to leave enough plants growing in each locale to conserve the plant population for future years.

Krochmal works hard at being the scientist. "I want to feel that I have contributed something when I die," he explains. But he doesn't let his life fall into a common stereo-type. He doesn't shrink away in scientific suspension, nor merely huddle over his lab microscope. Underneath the man who insists, "I'm just Krochmal!" is a cache of personality.

As adventurer, world-traveller, philosopher, writer, educator, and humanitarian, Krochmal reveals tremendous get-up-and-go. He goes out to meet the people and face the issues. Name some of the exciting places in the world--Greece, Afghanistan, Honduras, Thailand, Brazil, Surinam, Barbados, the Virgin Islands--and Krochmal has lived there.

Living and working abroad has stirred his foreign interests. Even after returning home, he finds it impossible to divorce himself from the international situation. As an unpaid consultant for Volunteers for International Technical Assistance, Schenectady, N. Y., he helps answer inquiries from Peace Corps volunteers, missionaries and foreign technicians, working to improve agricultural practices overseas.

From 1961-1966 Krochmal served in the Virgin Islands with the USDA. Besides editing Caribbean Agriculture and Science, a journal of scientific articles contributed by researchers throughout the area, he developed marketing and growing methods for papaya, tapioca, pineapples, cassava, and African yams. His objective was to persuade the people to grow these tropical crops commercially. He also advised the governments of Jamaica and Montserrat on fruit and vegetable plantings and toured the world as an advisor to A.I.D.

Krochmal's humanitarian interests continue near his present home base in Berea, Ky. Appalachian poverty surrounds him. When time permits, he spends time helping volunteer workers with the Save the Children Fund. He once demonstrated how to use enamel paint to the people of the small mountain community of Bear Wallek, and is now helping to

set up a wood shop in Goose Creek, another eastern Kentucky community. He also heads a Cub Scout den, similar to the group of Green Mountain Boys, or Sub-Cubs, he organized during his stay in the Virgin Islands.

Today's Berea Lab may be removed from the excitement of the exotic places, but it still has that Krochmal atmosphere. There are drying plants scattered about it, and bottles of medicines with strange sounding names: Thuya in Oil, Phytolacca Berry Tablets, and Mullein Essence. Even selections from his personal bookshelf show his diversity: U. S. Dispensatory, Plantas Medicinales, Useful Plants of India and Pakistan, The Drug Plants of Illinois, Nuttige Planten en Surinam, and Garden Spices and Wild Pot-Herbs.

Krochmal's love for the primitive and rustic makes him a great improviser. After years of living in underdeveloped nations, he knows that to meet a need for something scientific, he sometimes has to make do with what is at hand. In his Berea Lab, he proudly shows three germinators that he ingeniously rigged to keep economically within his project budget, yet that operate on a par with expensive, commercial devices. Of the three, one is constantly in need of light. To provide it, Krochmal attached an inexpensive incandescent fish tank light over the front glass. To keep the heat of this light away from the germinator, he also invested in a small fan. The second needs darkness, so Krochmal covered the glass with black tar paper. To provide controlled amounts of light and dark to the third and most complicated one, he installed a timing device. At the prescribed time, the lights and a small fan turn on, and later turn off on cue.

A native of the Bronx, Krochmal graduated from Dewitt Clinton High School there in 1937; then went on to North Carolina State for his B. S. After serving as an Army Staff Officer during World War II, he completed work on his Ph. D. at Cornell in 1952.

Teaching since his early days as a Fullbright Professor in Greece has taken him to a number of institutions: New Mexico A & M, State University of New York, Morris Brown--an all-Negro school in Atlanta, Arizona State University, and Western Carolina College. In addition, he served as Chairman of the Horticulture Department of the Pan-American Agricultural School, Tegucigalpa, Honduras, where he also edited an agriculture periodical, CEIBA. He was an economic geographer on the faculty of the College of the Virgin Islands, 1964-1966. During the summer of 1966, he served as a Guest Faculty Member on Conservation at the State University of Wisconsin, Superior. And during the fall term of 1967, he taught a world geography course at Berea College.

(Lobelia sketch by Marion Sheehan, Gainesville, Fla.)